

# *The VCM Series*

## Quick Start Guide



by  MOTORTRONICS

## **Motortronics VCM Series**

Thank you for purchasing this Motortronics VCM Series sensorless vector AC drive. When properly installed, operated and maintained, the VCM will provide a lifetime of reliable operation. It is mandatory that the person who operates, inspects and maintains this equipment thoroughly reads and understands this manual. This will insure safe and reliable operation of the controller.

This unit has been put through demanding tests at the factory prior to shipment. Before unpacking, check the following:

- Verify that the model number on the box matches your purchase order
- Inspect for possible damage (if damaged, notify the freight carrier and file a claim within 15 days of receipt)

After unpacking, please check the following:

- Verify the label specifications match your application requirement.
- Check all electrical connections and screws. Verify that there is no visible damage to any of the components.

### **WARNING!**

**Do not service equipment with voltage applied!**

**Unit can be a source of fatal electrical shock! To avoid shock hazard, disconnect main power and wait until the LED on the main control board goes out before working on the control Warning labels (not supplied) must be attached to terminals, enclosure and control panel.**

**Unit does not provide overspeed protection or incorporate current limiting control.**

**To obtain optimum operation from your VCM Series sensorless vector AC drive, it is strongly recommended that this manual is read and understood.**

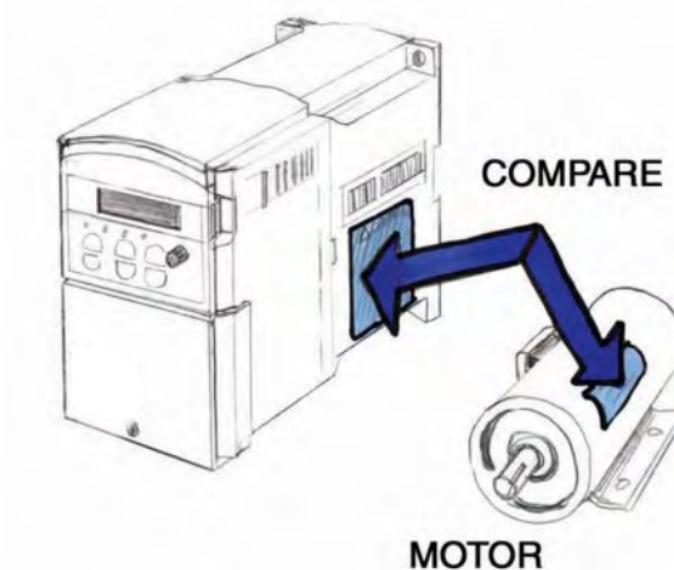
This guide provides step-by-step instructions to install your VCM Series drive.

# 1

## Check Inverter Nameplate

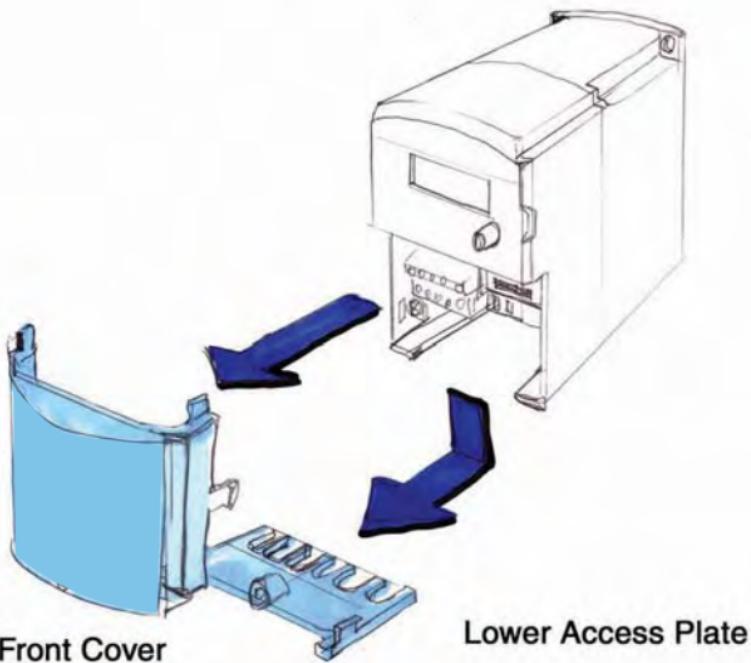
Compare the AC Inverter nameplate Volts & Amps with the motor nameplate. The ratings should be the same.

**Caution:** Motor or drive failure can result if the ratings do not match. Drive current rating must equal or be higher than the motor.



2

## Remove Front Cover & Lower Access Plate



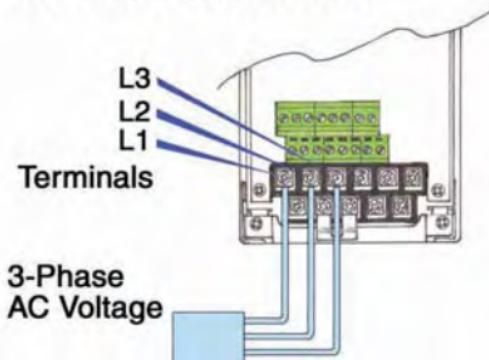
3

## Connect AC Input Wire (1-Phase or 3-Phase to Power Terminal Strip

(This step requires installation by qualified personnel)

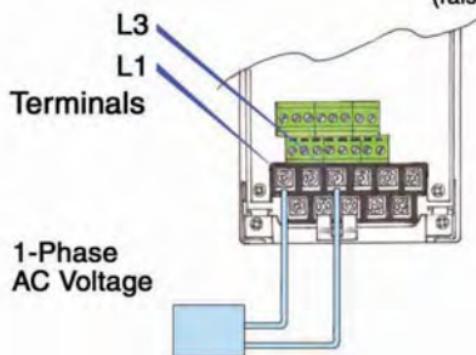
Locate the power terminal strip. Check the AC voltage rating shown on the Inverter nameplate with the AC incoming voltage.

### 3-Phase Connection



**Caution:**  
Applying voltage higher than the rated VCM AC input voltage will damage the drive and could cause personal injury.

### 1-Phase



**Note:**  
Terminal Markings  
appear in this area  
(raised moldings)



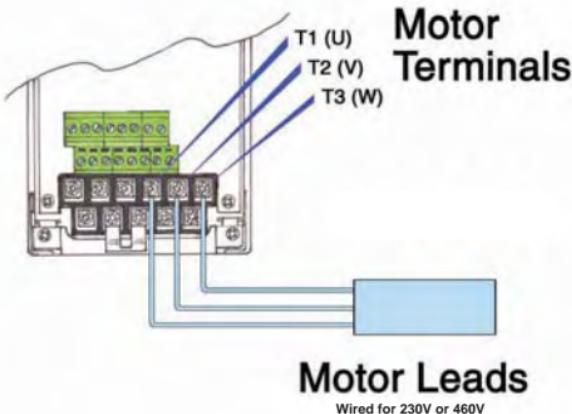
# 4

## Connect Motor Leads to Terminal Strip

Check the motor leads to insure they are wired to match the 230 Volt or 460 Volt output as shown on the VCM inverter nameplate.

**Caution: Applying higher than rated voltage will damage the motor.**

### Check Motor Nameplate



# 5

## Apply AC Power

Apply AC power to the drive and observe the keypad.

**A**

Display Briefly Reads  
AC INPUT VOLTAGE

**Keypad**



AC Volts  
230  
or  
460

**B**

After 1 Second  
Display Reads  
SET FREQUENCY  
0.500HZ (LOW RPM)

 HZ LED  
Remains  
Lit

**Keypad**



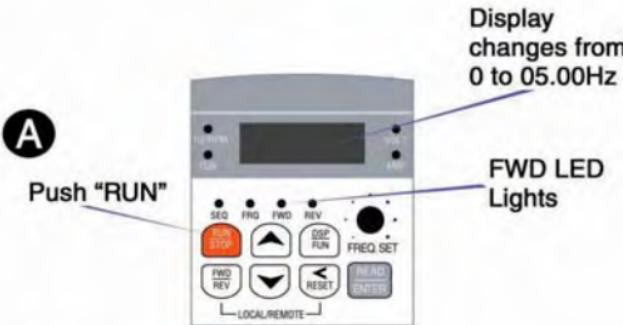
05.00Hz

FWD LED  
Blinks  
ON and OFF  


# 6

## Start AC Inverter without Motor Load

This step is done without the motor connected to the machinery in order to prevent damage from reverse rotation of the motor shaft. If the motor is connected, do not apply any additional load to the machine.



**B** Check Motor Shaft Rotation



**C** If correct, push "STOP" button

## Continued...

# 6

**D**

### IF WRONG DIRECTION



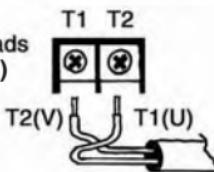
1) Push "STOP" Button 

2) Remove AC Power  
to the Inverter



3) Wait until LED Display  
turns OFF. 

4) Reverse Motor Leads  
T1 (U) and T2 (V)

**E**

1) Re-Apply AC Power



2) Push "RUN" Button 

3) Check Motor Shaft Rotation



4) Push "STOP" Button to Stop  
the Motor 

# 7

## Adjusting Drive Speed 60Hz Example:

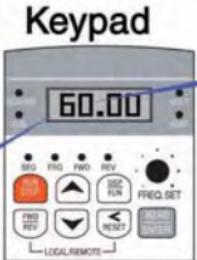
**A** Drive Stopped  
FREQ = 5Hz



**B** RESET  
FREQ to 60Hz  
(60Hz = Full Speed)

1) Select this location  
by shifting left  
with 

2) Push UP arrow   
until "6" is shown



When the 10's digit  
is set to "6", the 1's digit  
automatically sets to "0"  
to avoid exceeding the  
"Upper frequency limit"  
(B005 = 60.00Hz)

**C** Push "ENTER" 

**D** Push "RUN" 

**E** Drive accelerates to 60Hz

**F** Stop the Drive

# 8

## Setting the Motor Data Keypad

### Accessing Advanced Display

Press the  to select “Program” Mode (b000).

Use  to scroll up to (b011), then press  to display value (0000).

Press  once to change to (0001), then press  to record. Display reads (b011) and Advanced Display is accessible.



### Programming Motor Parameters

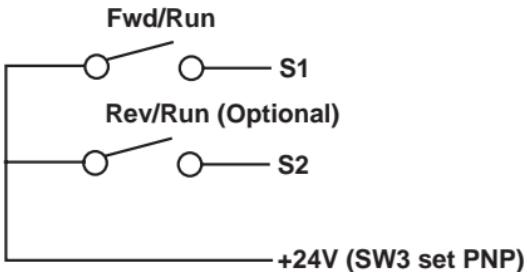
- Press  to select “Program” mode. Display reads (bXXX). Press  3 times and  once to change to (A001) “Motor Voltage.”
- Press  to display value and use  and   to adjust to motor nameplate voltage. Press  to record value. Display should show (A001).
- Press  to access (A002) “Motor Current” and repeat step B to program motor nameplate current. Display should show (A002)
- Repeat for (A003) Motor nameplate HP (kw/0.746)
- Repeat for (A004) Motor rated RPM
- Repeat for (A005) Motor rated frequency (Hz)



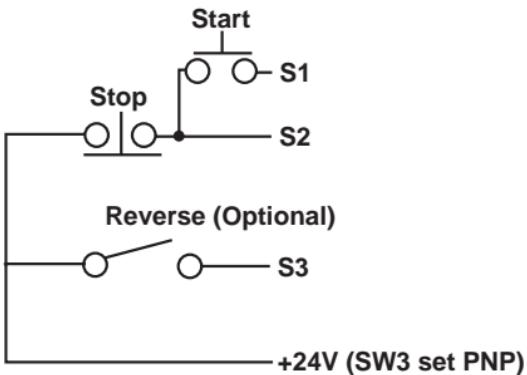
# 9

## Alternate Control from Terminals:

### 2 Wire Control (b001 = 0000)



### 3 Wire Control (b001 = 0002)



# 10

## You have successfully completed all the steps in the Quick Start Guide.

You are now ready to proceed to the VCM Instruction Manual to review installation, environmental operation, basic set-up adjustments, remote control and advanced adjustments that allow you to customize your drive to your application.